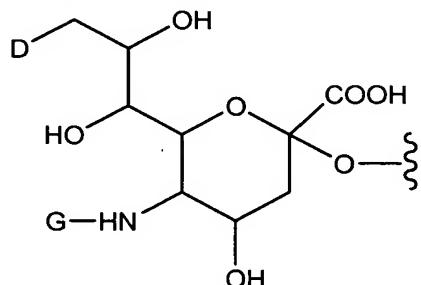


**WHAT IS CLAIMED IS:**

1 1. A follicle stimulating hormone peptide comprising the moiety:



2

3 wherein

4 D is a member selected from -OH and R<sup>1</sup>-L-HN-;

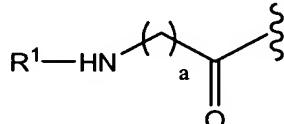
5 G is a member selected from R<sup>1</sup>-L- and -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl;

6 R<sup>1</sup> is a moiety comprising a member selected a moiety comprising a straight-  
7 chain or branched poly(ethylene glycol) residue; and

8 L is a linker which is a member selected from a bond, substituted or  
9 unsubstituted alkyl and substituted or unsubstituted heteroalkyl,

10 such that when D is OH, G is R<sup>1</sup>-L-, and when G is -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl, D is  
11 R<sup>1</sup>-L-NH-.

1 2. The peptide according to claim 1, wherein L-R<sup>1</sup> has the formula:

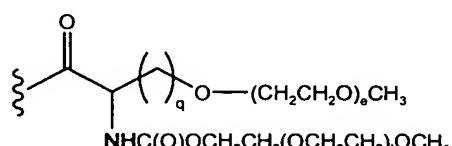
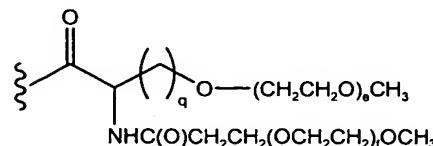
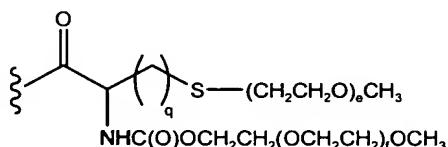
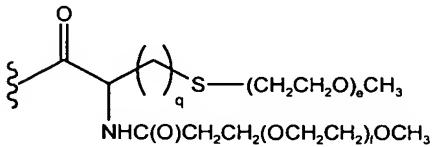


2

3 wherein

4 a is an integer from 0 to 20.

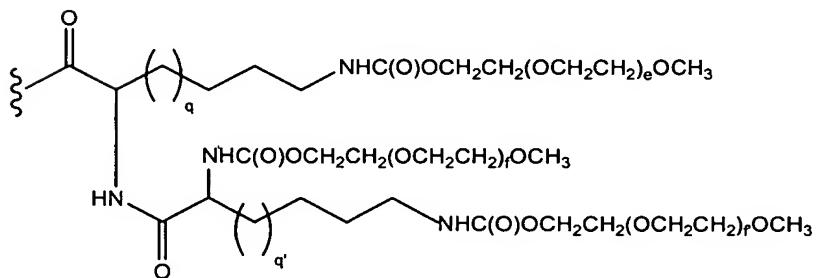
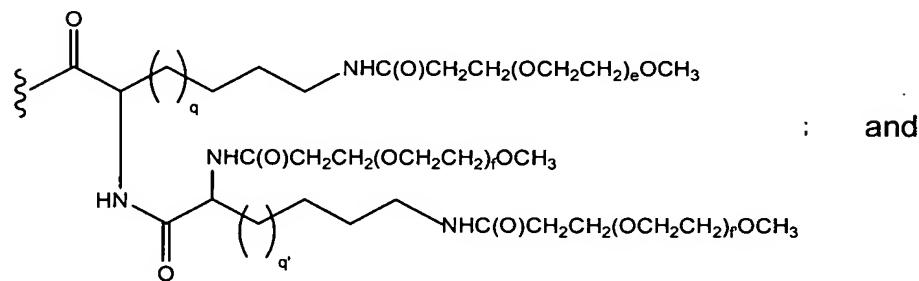
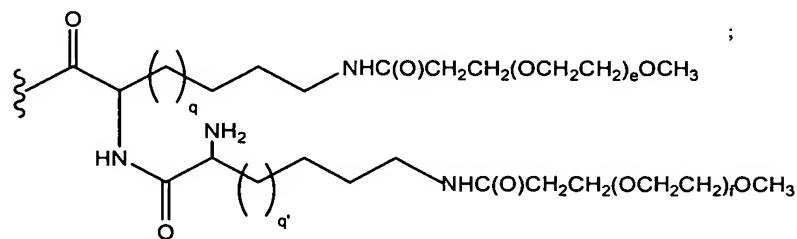
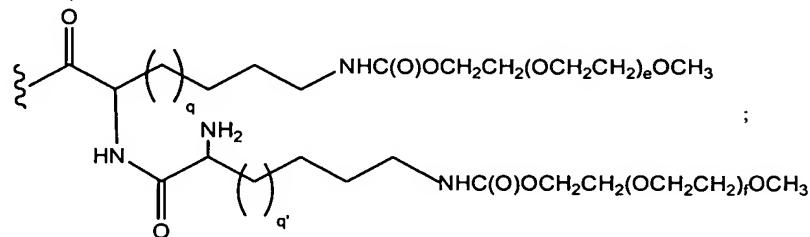
1 3. The peptide according to claim 1, wherein R<sup>1</sup> has a structure that is a member  
2 selected from:



3 4 wherein

5       e and f are integers independently selected from 1 to 2500; and  
6       q is an integer from 0 to 20.

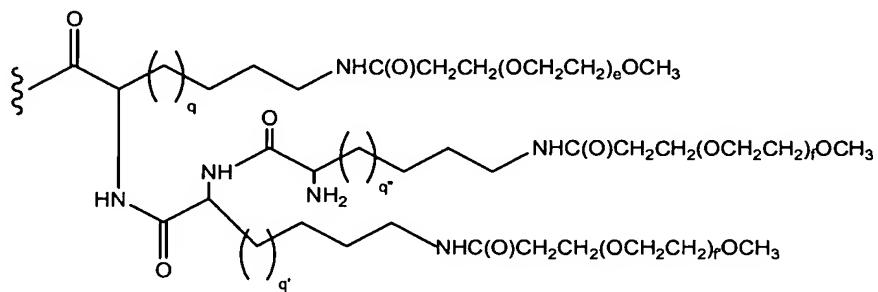
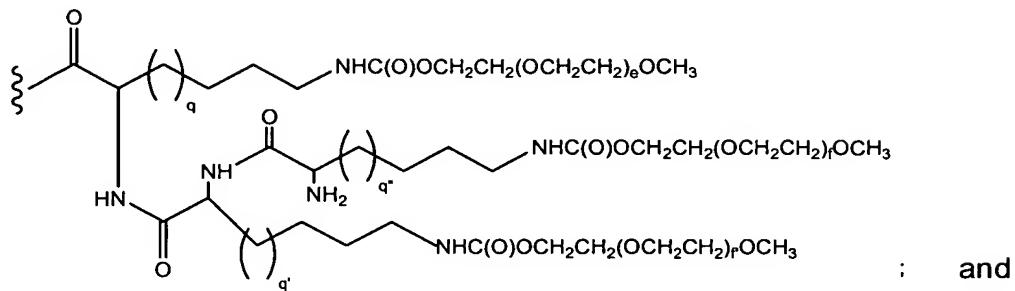
1       4.      The peptide according to claim 1, wherein R<sup>1</sup> has a structure that is a member  
2       selected from:



3  
4       wherein

5       e, f and f' are integers independently selected from 1 to 2500; and  
6       q and q' are integers independently selected from 1 to 20.

1    5.    The peptide according to claim 1, wherein R<sup>1</sup> has a structure that is a member  
2    selected from:

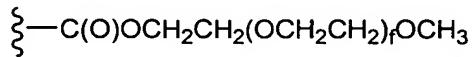


4    wherein

5       e, f and f' are integers independently selected from 1 to 2500; and

6       q, q' and q" are integers independently selected from 1 to 20.

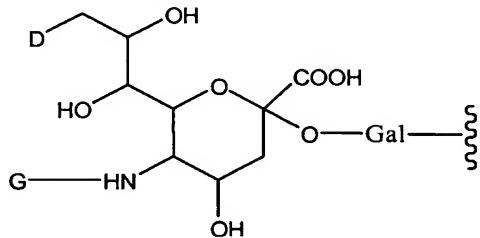
1    6.    The peptide according to claim 1, wherein R<sup>1</sup> has a structure that is a member  
2    selected from:



3    wherein

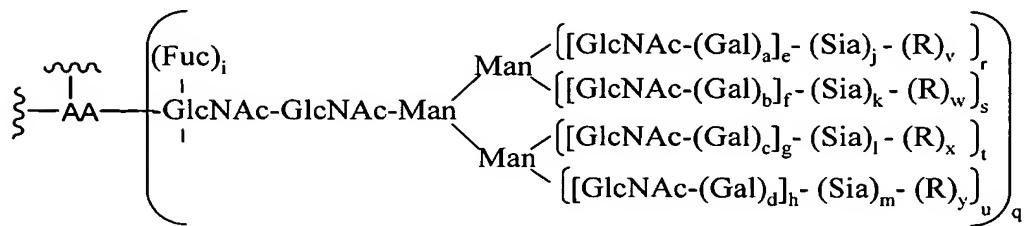
5       e and f are integers independently selected from 1 to 2500.

1    7.    The FSH peptide according to claim 1, wherein said moiety has the formula:



1    8.    The peptide according to claim 1, wherein said peptide has an amino acid  
2    sequence selected from SEQ. ID. NO:1 and SEQ ID NO:2.

1 9. The FSH peptide according to claim 1, wherein said moiety has the formula:



2

3 wherein

4 a, b, c, d, i, r, s, t, and u are integers independently selected from 0 and 1;

5 q is 1;

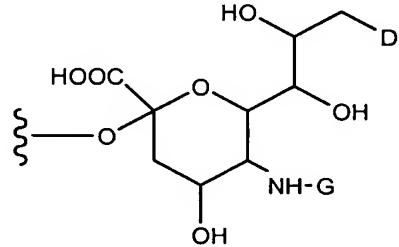
6 e, f, g, and h are members independently selected from the integers from 0 to  
7 6;

8 j, k, l, and m are members independently selected from the integers from 0 and  
9 100;

10 v, w, x, and y are independently selected from 0 and 1, and least one of v, w, x  
11 and y is 1;

12 AA is an amino acid residue of said FSH peptide;

13 Sia-(R) has the formula:



14

15 wherein

16 D is a member selected from -OH and R<sup>1</sup>-L-HN-;

17 G is a member selected from R<sup>1</sup>-L- and -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl;

18 R<sup>1</sup> is a moiety comprising a member selected a straight-chain or  
19 branched poly(ethylene glycol) residue; and

20 L is a linker which is a member selected from a bond, substituted or  
21 unsubstituted alkyl and substituted or unsubstituted heteroalkyl,

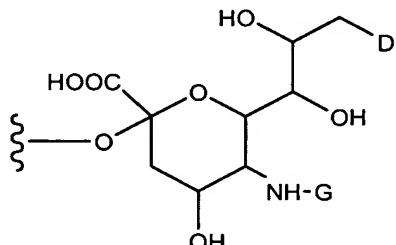
22 such that when D is OH, G is R<sup>1</sup>-L-, and when G is -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl,  
23 D is R<sup>1</sup>-L-NH-.

1 10. The peptide according to claim 9, wherein said amino acid residue is an  
2 asparagine residue.

1 11. The peptide according to claim 10, wherein said said amino acid residue is an  
2 asparagine residue which is a member selected from N7 of SEQ ID NO:2, N24 of  
3 SEQ ID NO:2, N52 of SEQ ID NO:1, and N78 of SEQ ID NO:1, and combinations  
4 thereof.

1 12. The peptide according to claim 1, wherein said peptide is a bioactive follicle  
2 stimulating hormone peptide.

1 13. A method of making a FSH peptide conjugate comprising the moiety:



2  
3 wherein

4 D is a member selected from -OH and R<sup>1</sup>-L-HN-;

5 G is a member selected from R<sup>1</sup>-L- and -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl;

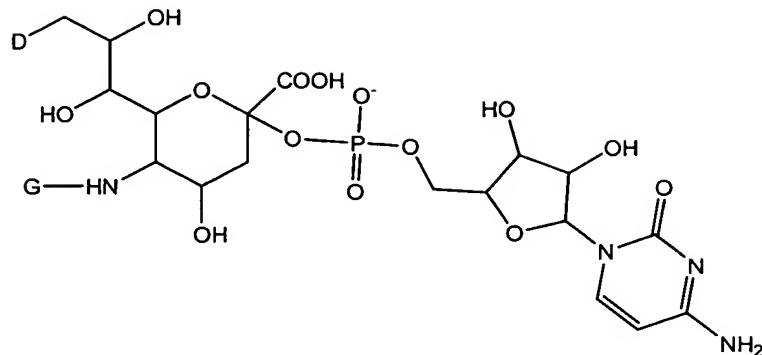
6 R<sup>1</sup> is a moiety comprising a member selected a straight-chain or branched  
7 poly(ethylene glycol) residue; and

8 L is a linker which is a member selected from a bond, substituted or  
9 unsubstituted alkyl and substituted or unsubstituted heteroalkyl,

10 such that when D is OH, G is R<sup>1</sup>-L-, and when G is -C(O)(C<sub>1</sub>-C<sub>6</sub>)alkyl, D is  
11 R<sup>1</sup>-L-NH-,

12 said method comprising:

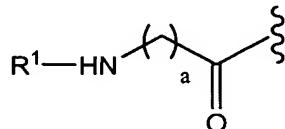
13 (a) contacting a substrate FSH peptide with a PEG-sialic acid donor moiety  
14 having the formula:



15

16       and an enzyme that transfers said PEG-sialic acid onto an amino acid  
17       or glycosyl residue of said FSH peptide, under conditions appropriate  
18       for the transfer.

1       **14.**     The method according to claim 13, wherein L-R<sup>1</sup> has the formula:

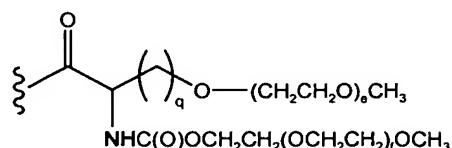
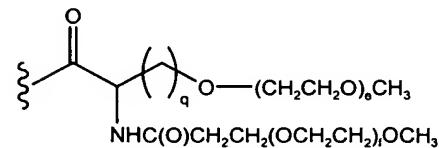
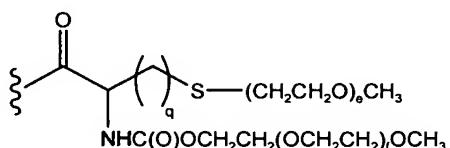
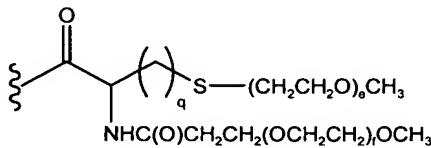


2

3       wherein

4       a is an integer from 0 to 20.

1       **15.**     The method according to claim 13, wherein R<sup>1</sup> has a structure that is a  
2       member selected from:

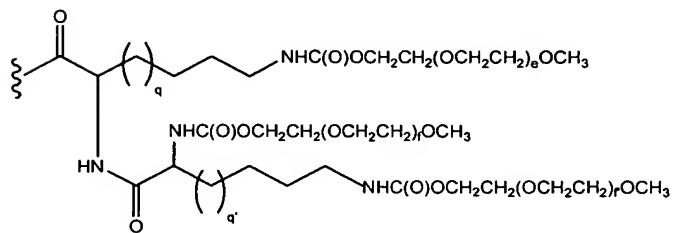
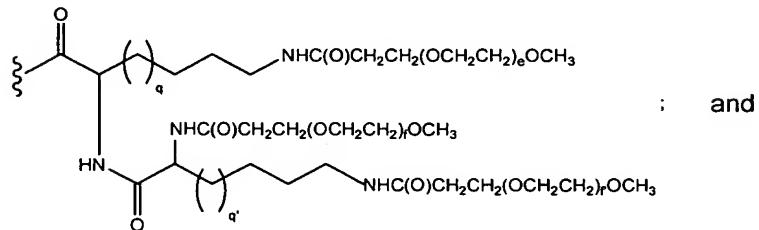
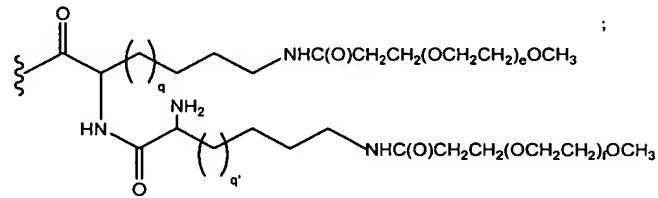
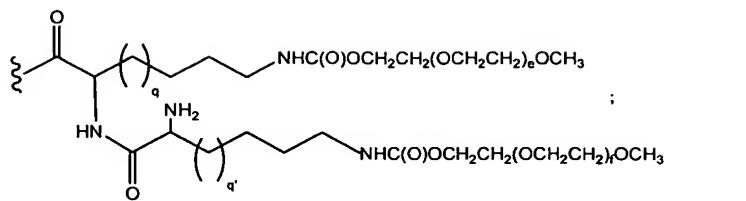


3       wherein

4       e and f are integers independently selected from 1 to 2500; and

5       q is an integer from 0 to 20.

1       **16.**     The method according to claim 13, wherein R<sup>1</sup> has a structure that is a  
2       member selected from:



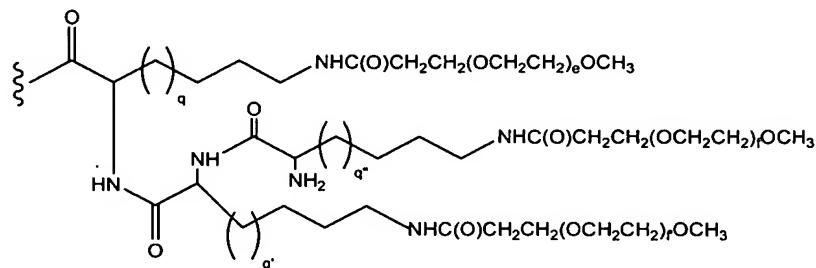
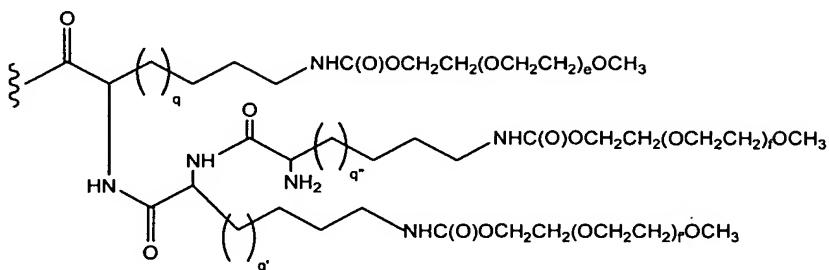
3

4 wherein

5        e, f and f' are integers independently selected from 1 to 2500; and

6        q and q' are integers independently selected from 1 to 20.

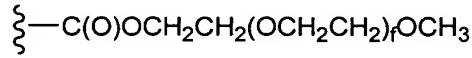
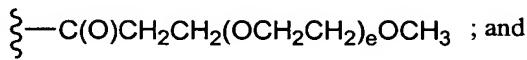
1   **17.**   The method according to claim 13, wherein R<sup>1</sup> has a structure that is a  
2   member selected from:



3  
4   wherein

5       e, f and f' are integers independently selected from 1 to 2500; and  
6       q, q' and q" are integers independently selected from 1 to 20.

1   **18.**   The method according to claim 13, wherein R<sup>1</sup> has a structure that is a  
2   member selected from:



3  
4   wherein

5       e and f are integers independently selected from 1 to 2500.

1   **19.**   The method of claim 13, further comprising, prior to step (a):

2       (b) expressing said substrate follicle stimulating hormone peptide in a  
3   suitable host.

1   **20.**   The method of claim 13, wherein said host is selected from an insect cell and a  
2   mammalian cell.

1   **21.**   A method of stimulating ovarian follicles in a mammal, said method  
2   comprising administering to said mammal a peptide according to claim 1.

1   **22.**   A method of treating a condition in a subject in need thereof, said condition  
2   characterized by reproductive infertility said method comprising the step of  
3   administering to the subject an amount of a peptide according to claim 1, effective to  
4   ameliorate said condition in said subject.

1   **23.**   A pharmaceutical formulation comprising the follicle stimulating hormone  
2   peptide according to claim 1, and a pharmaceutically acceptable carrier.